Notice of Allowability	Application No.	Applicant(s)
	10/775,271	OHKAWA, TIHIRO
	Examiner	Art Unit
	James J. Leybourne	2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.

2. ☒ The allowed claim(s) is/are *1-20*.

3. ☒ The drawings filed on *10 February 2004* are accepted by the Examiner.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

 * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☒ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date May 12, 2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-20 are allowed.

2. The following is an examiner's statement of reasons for allowance:

- Regarding independent claims 1 and 7, the prior art fails to disclose or make obvious a device for separating a multi-constituent material into constituents comprising: a cylindrical wall having a first end, a second end and an inner radius, surrounding a chamber and defining a longitudinal axis;
- means for converting the multi-constituent material into a multi-species plasma in said chamber within a radius to create ions of relatively low mass to charge ratio, M1, and ions of relatively high mass to charge ratio, M2;
- means for establishing crossed electric and magnetic fields (E x B) in said chamber
- means for controlling said electric field and said magnetic field to place said ions of relatively high mass to charge ratio, M2, on trajectories into said collector, and to place said ions of relatively low mass to charge ratio, M1, on trajectories through said hollow collector.

Regarding independent claim 16, the prior art fails to disclose or make obvious a method for separating a multi-constituent material into constituents comprising providing the apparatus of claim 7 and controlling the electric and magnetic fields to place ions of

relatively high mass to charge ratio on trajectories that direct them onto the collector, and to place ions of relatively low mass to charge ratio on trajectories that allow them to pass through the hollow collector.

Claims 2-6, 8-15 and 17-20 are allowed by virtue of their dependency on claims 1, 7 and 16 respectfully.

The main feature that separates the apparatus and method apart from prior art is the use of a circular collector and controlling the E X B field to allow only ions below a defined mass to charge ratio to enter the collector.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance"

Relevant Prior Art

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 20040077916 A1 to Gilleland et al. discloses a system and method for radioactive waste vitrificatio that uses a plasma mass filter to collect radioactive particles from a multi-species plasma.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James J. Leybourne whose telephone number is (571) 272-2478. The examiner can normally be reached on M-F 9:00- 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nikita Wells

NIKITA WELLS
PRIMARY EXAMINER 06/27/05

6/26/05

JJL